[DIGITAL DC BIAS ESTIMATION APPARATUS AND METHOD]

Abstract

A digital DC bias estimation apparatus and a method thereof for estimating a DC bias of a received signal obtained from a packet after it is received and sampled are provided. The digital DC bias estimation apparatus comprises a symbol boundary detection unit, a preamble pattern identification enabling unit, a preamble pattern identification unit, and a bias calculation unit. The symbol boundary detection unit differentiates a received signal to obtain a differential curve, slices the differential curve into a binary-type comparison base signal by assigning a starting point on a region beyond a transition setting threshold range in the differential curve as a transition point, and issues a boundary signal when a transition is occurred. The preamble pattern identification enabling unit counts a sampling number between two contiguous boundary signals, and the counted sampling number is reset to zero each time the boundary signal occurs, and when the counted sampling number is within an allowable range before it is reset to zero, the preamble pattern identification enabling unit issues a

preamble pattern storing signal. The preamble pattern identification unit obtains a pattern of the sliced binary comparison base signal from the comparison base signal during a corresponding period according to the preamble pattern storing signal, compares the pattern of the continuously obtained sliced binary comparison base signals with a predefined preamble pattern, and issues a matching signal when the pattern of the continuously obtained sliced binary comparison base signals matches the predefined preamble pattern. The bias calculation unit electrically couples to the preamble pattern identification unit, and outputs an average potential of peaks of the received signals between two contiguous boundary signals at the same time when the preamble pattern identification unit issues the matching signal, wherein the received signals are matched to the predefined preamble pattern and received before the matching signal is occurred.